

Amendments to the claims:

This listing of claims will replace all prior versions and listing, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A heterobipolar transistor, comprising:

a substrate;

a collector layer of Si formed on said substrate;

a base layer formed on said collector layer; and

an emitter layer of Si formed on said base layer,

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said base layer comprising a SiGeC ternary mixed crystal having a C concentration profile such that a C concentration in said base layer increases from a first interface facing said emitter layer to a second interface facing said collector layer,

wherein there is formed ~~an~~ a germanium free interface layer of SiC between said base layer and said emitter layer ~~such that said interface layer contains Si and C.~~

Claim 2 (original): A heterobipolar transistor as claimed in claim 1, wherein said substrate is a Si substrate.

Claim 3 (withdrawn): A heterobipolar transistor as claimed in claim 1, wherein said base layer has a Ge concentration substantially constant from said first interface to said second interface.

Claim 4 (original): A heterobipolar transistor as claimed in claim 1, wherein said base layer has a Ge concentration that increases from said first interface to said second interface.

Claim 5 (original): A heterobipolar transistor as claimed in claim 4, wherein said base layer has a C concentration and a Ge concentration that change from said first interface to said second interface while maintaining a constant ratio.

Claim 6 (original): A heterobipolar transistor as claimed in claim 5, wherein said ratio is set so as to avoid defect formation in said base layer due to lattice misfit with respect to said substrate, from said first interface to said second interface.

Claim 7 (original): A heterobipolar transistor as claimed in claim 5, wherein said ratio is set so as to achieve a lattice matching in said base layer with respect to said substrate, from said first interface to said second interface.

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cont.
Claim 8 (original): A heterobipolar transistor as claimed in claim 4, wherein said Ge concentration and said C concentration change from said first interface to said second interface continuously.

Claim 9 (canceled)

Claim 10 (canceled)

Claim 11 (currently amended): A heterobipolar transistor as claimed in claim 1, wherein there is formed another germanium free interface layer of SiC between said base layer and said collector layer ~~such that said another interface layer contains Si and C.~~

Claim 12 (withdrawn): A heterobipolar transistor, comprising:
a substrate;
a collector layer formed on said substrate;
a base layer formed on said collector layer; and
an emitter layer formed on said base layer,
said base layer comprising a SiGe binary mixed crystal,
said emitter region including a first region contacting with said base layer, said collector layer including a second region contacting with said base layer,

at least one of said first and second regions containing C.

Claim 13 (withdrawn): A heterobipolar transistor as claimed in claim 12, wherein both of said first and second regions contain C.

Claim 14 (withdrawn): A method of forming a SiGeC mixed crystal layer, comprising the step of:

supplying SiH_4 , GeH_4 and a gaseous source of C containing two or more C atoms in a molecule to a surface of a substrate respectively as sources of Si, Ge and C.

Claim 15 (withdrawn): A method as claimed in claim 14 wherein said substrate is a Si substrate.

Claim 16 (withdrawn): A method as claimed in claim 14, wherein one of $(\text{CH}_3)_2\text{SiH}_2$ and $(\text{CH}_3)_3\text{SiH}$ is used as said gaseous source of C.

Claim 17 (withdrawn): A method as claimed in claim 14, wherein said step of supplying SiH_4 , GeH_4 and said gaseous source of C comprises the steps of: (a) supplying SiH_4 to said substrate surface; (b) supplying, after said step (a), said gaseous source of C to said substrate surface; and (c) supplying, after said step (b), GeH_4 to said substrate surface.

Claim 18 (withdrawn): A method as claimed in claim 14, wherein said gaseous source of C is supplied with a variable rate with a growth of said SiGeC mixed crystal layer.